

CLAIMS

1. A method for controlling screens in an electronic device having a display and a plurality of application programs, each application program having associated with it a plurality of screens, the method comprising the steps of:

detecting user activation of a user interface control represented on the display, the display displaying a representation of a first screen, the representation of the first screen including a representation of the user interface control, the user interface control associated with one and only one of a plurality of commands and included in one of the plurality of screens;

matching a command to the activation of the user interface control associated with the command in response to an indication of the command listed in a control file with indications of the plurality of commands;

one of a plurality of object methods, each associated with one and only one of the plurality of commands, responding to a match between the command listed in the control file and the activation of the user interface control; and

changing the display from displaying a representation of the first screen to displaying a representation of a second screen in response to the object method.

2. The method claimed in claim 1, wherein:

the first screen is associated with a first application program;

the second screen is associated with a second application program; and

the object method invoked by activation of the user interface control of the first screen is included in the second application program.

3. The method claimed in claim 1, wherein:

the first screen is associated with a first application program;

the second screen is associated with the first application program; and
the object method invoked by activation of the user interface control of the first screen is included in the first application program.

4. The method claimed in claim 1, wherein:

the file includes indications of a plurality of user interface control labels, each associated with one of the indications of the plurality of commands; and

the representation of the user interface control on the display includes one of the plurality of user interface control labels.

5. The method claimed in claim 1, wherein the step of detecting user activation of a user interface control comprises:

creating a plurality of bus listeners, at least one bus listener of the plurality of bus listeners corresponding to each user interface control, each bus listener having a corresponding address;

storing a value listed in the control file in an address listed in the control file, the value and address each associated with the command associated with the user interface control; and

a bus listener having the address associated with the command responding to a change in value stored in the address associated with the command by invoking the command.

6. The method claimed in claim 5, wherein:

the first screen is associated with a first application program;

the second screen is associated with a second application program;

the object method invoked by activation of the user interface control of the first screen is included in the second application program; and

the bus listener having the address associated with the command responds to a change in value by invoking a command changing from the first screen to the second screen.

7. A method for providing screen control in an electronic device having a display, the method comprising the steps of:

adding to the device a plurality of application programs, each application program having associated with it a plurality of screens representable on the display, each screen having a user interface control associated with one and only one of a plurality of commands; and

adding to the device a control file with an indication of each command and an associated object method included in one of the application programs, the object method responsive to activation of a user interface control represented on the display by changing the display from displaying a representation of a first screen to displaying a representation of a second screen.

8. The method claimed in claim 7, wherein the object method responsive to activation of a user interface control of the first screen is included in the second application program.

9. The method claimed in claim 7, wherein the object method invoked by activation of a user interface control of the first screen is included in the first application program.

10. A method for controlling screens in an electronic device having a display and a plurality of application programs, each application program having associated with it a plurality of screens, the method comprising the steps of:

adding a second application program to a device having a first application program, the first application program having associated with it a first screen having a first group of one or more user interface controls representable on the display when the first application program is invoked;

updating a control file in the device contemporaneously with the step of adding the second application program, the control file prior to updating including indications of commands associated with object methods in the first application program, the control file after updating including indications of commands associated with object methods in the second application program; and

in response to the step of adding the control file, associating with the first application program a second screen having a second group of one or more user interface controls representable on the display when the first application program is invoked, one or more user interface controls in the second group associated with commands indicated in the control file as associated with object methods in the second application program.

11. The method claimed in claim 10, wherein:

the step of adding a second application program comprises downloading the second application program from a remote source; and

the step of updating a control file comprises downloading the control file from a remote source.

12. A method for executing an application program in an electronic device having a user interface in a platform-independent manner, comprising the steps of:

in an application program, invoking an application program object method to communicate with a user of the device;

a view provider object instantiating a user interface communication object in response to invocation of the object method and in response to an application program interface specified in a collection of platform-dependent plug-in classes, the user interface communication object implementing an interface class in a collection of platform-independent kernel classes, the kernel classes defining platform-independent user interface functions, the plug-in providing platform-dependent implementations of platform-independent user interface functions accessed through the application program interface; and

the user interface communication object translating between a platform-independent user interface function and a platform-dependent user interface function, whereby communication with the user of the device occurs through the platform-dependent user interface function and communication with the application program object method occurs through the platform-independent user interface function.

13. A method for executing an application program in an electronic device having an input/output (I/O) subsystem in a platform-independent manner, comprising the steps of:

in an application program, invoking an application program object method to communicate data between the device and a remote device via a transmission medium;

an I/O provider object instantiating an I/O communication object in response to invocation of the object method and in response to an application program interface specified in a collection of platform-dependent plug-in classes, the I/O communication object implementing an interface class in a collection of platform-independent kernel classes, the kernel classes defining platform-independent user interface functions, the plug-in providing platform-dependent implementations of platform-independent I/O functions accessed through the application program interface; and

the I/O communication object translating between a platform-independent I/O function and a platform-dependent I/O function, whereby communication via the transmission medium occurs through the platform-dependent I/O function and communication with the application program object method occurs through the platform-independent I/O function.

14. A method for executing an application program in an electronic device having a data storage subsystem in a platform-independent manner, comprising the steps of:

in an application program, invoking an application program object method to perform a data transfer operation with the data storage subsystem;

a storage provider object instantiating a storage object in response to invocation of the object method and in response to an application program interface specified in a collection of platform-dependent plug-in classes, the storage object implementing an interface class in a collection of platform-independent kernel classes, the kernel classes defining platform-independent user interface functions, the plug-in providing platform-dependent implementations of platform-independent data storage functions accessed through the application program interface; and

the storage object translating between a platform-independent data storage function and a platform-dependent data storage subsystem function, whereby a transfer of data with the data storage subsystem occurs through the platform-dependent data storage subsystem function and communication with the application program object method occurs through the platform-independent data storage function.

15. An electronic device, comprising:

a display;

a memory in which is storable an object framework, a control file, and a plurality of application programs, each application program having associated with it a

plurality of screens, the control file defining interrelationships of screens and user interface controls; and

a processor programmed to effect a method using the object framework comprising the steps of:

detecting user activation of a user interface control represented on the display, the display displaying a representation of a first screen, the representation of the first screen including a representation of the user interface control, the user interface control associated with one and only one of a plurality of commands and included in one of the plurality of screens;

matching a command to the activation of the user interface control associated with the command in response to an indication of the command listed in the control file with indications of the plurality of commands;

one of a plurality of object methods, each associated with one and only one of the plurality of commands, responding to a match between the command listed in the control file and the activation of the user interface control; and

changing the display from displaying a representation of the first screen to displaying a representation of a second screen in response to the object method.

16. The device claimed in claim 15, wherein:
- the first screen is associated with a first application program;
 - the second screen is associated with a second application program; and
 - the object method invoked by activation of the user interface control of the first screen is included in the second application program.

17. The device claimed in claim 15, wherein:
- the first screen is associated with a first application program;

the second screen is associated with the first application program; and
the object method invoked by activation of the user interface control of the first screen is included in the first application program.

18. The device claimed in claim 15, wherein:

the file includes indications of a plurality of user interface control labels, each associated with one of the indications of the plurality of commands; and

the representation of the user interface control on the display includes one of the plurality of user interface control labels.

19. The device claimed in claim 15, wherein the processor effecting the step of detecting user activation of a user interface control comprises:

creating a plurality of bus listeners, at least one bus listener of the plurality of bus listeners corresponding to each user interface control, each bus listener having a corresponding address;

storing a value listed in the control file in an address listed in the control file, the value and address each associated with the command associated with the user interface control; and

a bus listener having the address associated with the command responding to a change in value stored in the address associated with the command by invoking the command.

20. The device claimed in claim 19, wherein:

the first screen is associated with a first application program;

the second screen is associated with a second application program;

the object method invoked by activation of the user interface control of the first screen is included in the second application program; and

the bus listener having the address associated with the command responds to a change in value by invoking a command changing from the first screen to the second screen.

21. The device claimed in claim 15, further comprising:
- a personal digital assistant-sized case; and
 - a wireless data communication interface for communicating data with a remote device.